THE MARINE RECORD.

DEVOTED TO COMMERCE, ENGINEERING AND SCIENCE.

$2.00 PER YEAR. ESTABLISHED 1878. 10c. SINGLE COPY.

VOL. XVIII. CLEVELAND, OHIO, AUGUST 1, 1895. NO. 31

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To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and im rove the character of the service rendered to the public.

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ALL WILL BE OUTSIDE ROOMS.

When the People's Steamboat Line in Albany passed under the control of the Vanderbilts recently, it was decided to build two fine vessels at a cost of $1,500,000 each. The new boats, it is believed, will exceed in speed and lines the well-known Fall River Line vessels, and will be the longest—400 feet—that have ever plied regularly on the Hudson. Each will have 400 staterooms, arranged so that all will be outside rooms. Heretofore no plan could be devised for giving every stateroom an outside window.

ENVIOUS NEIGHBORS.

When one American-built steamer, carrying the American flag, creates the excitement that attended the St. Louis on her initial trip, what will be the condition of the American mind when our commerce upon the seas once more assumes its old-time importance? When the seas are once more dotted with American merchantmen, sailing under the stars and stripes? That desired time seems close at hand.—Hardware, New York.

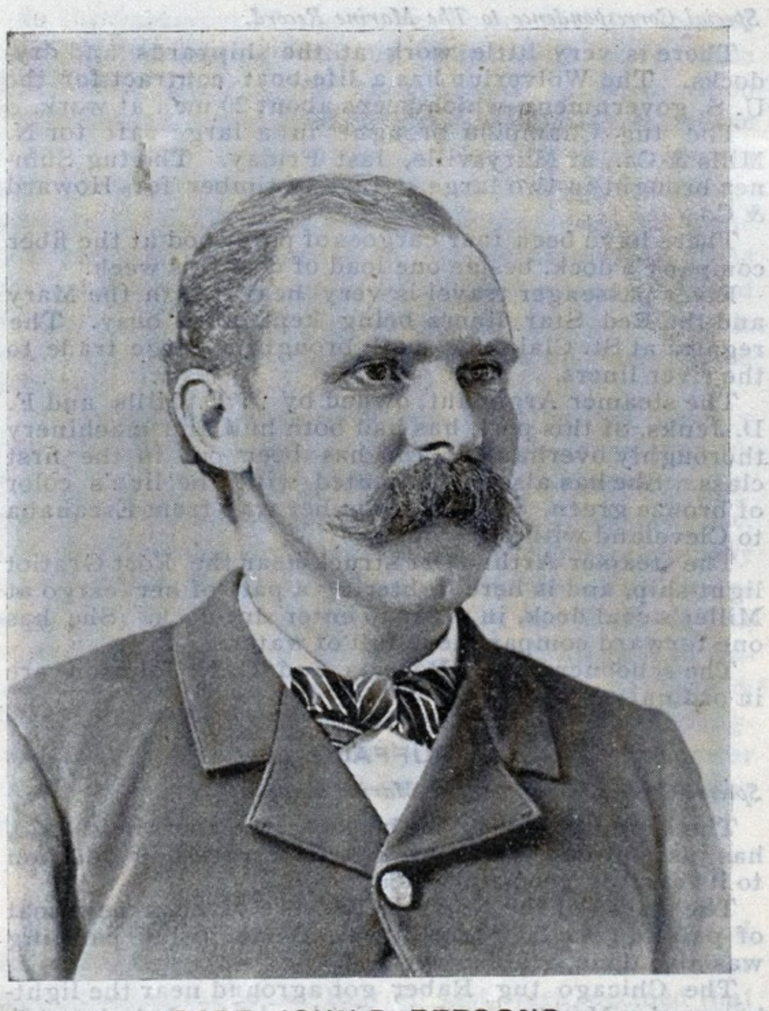
One swallow does not make a summer.—Canadian Manufacturer.

AN ACTIVE KEEPER.

(ILLUSTRATED.)

There are few, if any, life-saving stations on the entire chain of lakes that are in service in as many storms, from one season to another, as the crew at Thunder Bay Island. It is, then, well and proper that the station should be in charge of such a man as Capt. John D. Persons, who has been in the service since its infancy on the lakes, and has served for eighteen years.

Capt. Persons was born in Toledo in 1851. In his younger days he was engaged in the fishing business,



CAPT. JOHN D. PERSONS.

and later as assistant light-keeper at Thunder Bay Island with his father. In company with his father and others, he built the first fishing tug on the lakes, which he sailed for four years. He was appointed keeper of the Thunder Bay Island life-saving station in 1877, and has served in that capacity ever since. He and his brave crew have been the means of saving many lives and much property from vessels whose bones still lie strewn along the rocks.

The large life-boat exhibited at the World's Fair was, at the end of the exposition, sent to Thunder Bay Island, as the station on the lakes which it was most desirable to supply with perfect equipment. This was based largely on the record of the station. Capt. Persons has many warm personal friends, moreover, and rides around in a handsome steam-yacht which was presented to him by his friends.

THE INTER-LAKE REGATTA.

The programme of the Inter-lake Regatta which occurrs at Put-in-Bay next week is a neat leaflet, containing all requisite information. The meet continues throughout the week, Saturday being devoted to slow cruises homeward. On Monday the yachts will assemble, and the owners and captains will make and renew acquaintances.

Tuesday will be devoted to naphtha launches 30 and 25-footers, with special races for single and double catboats.

Wednesday, the 55, 46, 40 and 35-footers will compete, sailing around the course twice.

Thursday (ladies' day,) will be spent in crusing among the islands, returning in time for a reception and ball in the evening at Wehrles.

On Friday there will be a grand free-for-all race, with time allowance, to and around stakeboat off Lakeside, and return. There will be no time limit, but yachts are expected to finish in time for the banquet at the Beebe House at 9 p. m., when the presentation of prizes will occur. These are all cash prizes, except the naphtha launches, which will compete for the championship flag only. The prizes range from $50 to $3.

SAILORS' SUPERSTITIONS.

And I had done a hellish thing,
And it would work them woe:
For all averred I had shot the bird
That caused the breeze to blow.
—Rime of the Ancient Mariner.

It is remarkable how persistent are the superstitious notions which civilized people have inherited from their early ancestors. That the Japanese, the latest born of civilized communities, should believe the hawk, which, during the recent naval engagements alighted on the mast of one of their vessels, to have been sent as a good omen from heaven, is not to be wondered at. But what is to be said with reference to the incident connected with the ill-fated Chicora, related in the following paragraph:

On its last trip over from St. Joseph a wild duck flew around the Chicora twice. On its circle the duck was shot by Joseph W. Pearl, the St. Joe druggist, who was the only passenger on board. With the sailors' superstition the incident was considered an omen of disaster. It was a disheartened lot of men who formed the crew of the lost boat when it steamed out of the harbor Monday morning at 5 o'clock. Robert McClure, the chief engineer, confessed that he felt something was going to happen. The presentiment was too strong to be resisted, and McClure looked like a man who was going to his death. Capt. Stines was too ill to come ashore and remained in his cabin during the time his boat was in port. From captain to deck-hand there was a deep feeling of gloom and disaster ahead.

Seafaring men are proverbially superstitious, but it is questionable whether they are really more so than the persons who prefer a more settled mode of life and whom seamen speak of derisively as "land-lubbers."—Religio-Philosophical Journal.

DRY-DOCK rates will be increased at New York and neighboring ports, it is said, as soon as the Philadelphia syndicate gets the control for which negotiations are now under way.

NEWS AROUND THE LAKES.

CLEVELAND.

The Cleveland Yacht Club have prepared a very neat badge for their members and friends, to be worn on the occasion of the Interlake Regatta at Put-in-Bay next week. Suspended from a tri-color ribbon is a miniature mainsail, on which the club's pennant stands out in bold relief.

Capt. Ed. Dahlke has disposed of one-half his interest in the tug J. R. Worswick, just as she lies, on the botton, nearly opposite Case ave., to Supt. David T. Jones, of the Standard Contracting Co., the consideration being $500. The owners will set about raising the Worswick at once, and expect to have her in commission inside of two weeks.

The steamer Lake Michigan (Br.) called at this port Friday. She is making her annual trip with supplies for all the Canadian light-houses between Montreal and Victoria Harbor, on Lake Superior. Capt. James Delaney, who called at the MARINE RECORD office, stated that the water ranged from two to three feet lower than last year, and at the dummy at Point au Pelee, he found the water five feet below the stage of a year ago. He said he also touched bottom on Lake Lachine at a spot which he had sailed safely over fifty times before.

Chaplain J. D. Jones, of the Floating Bethel Society, has received a letter from Rev. George E. Shorter, well-known on the lakes, who says he is conducting a successful missionary work at the Sault. He says a shipping office on a small scale would be a convenience there at times.

The Cleveland City Forge and Iron Co., are at work on two large crank shafts for side-wheel steamers—one for the new C. & B. liner, and one for a Long Island Sound steamer.

The report that the Brown car tipping machine at Fairport is nearly finished is without foundation. The Brown Hoisting and Conveying Co., patentees and manufacturers, have been sadly delayed by the failure of proper material to arrive when expected, and the machine will probably not be in operation for two months yet, although a large part of the machine has already been erected.

One or two vessels have been getting aground at the mouth of the river during the past week, the schooner Tokio getting such a grip on the bottom that it required a long pull, and a strong pull, and a pull all-together by several tugs to release her. A government dredge is expected daily, and will dip up a few shovelfuls there before proceeding to dredge out the cut in the west arm of the breakwater.

The second of the new surfboats which the Wyandotte Boat Co. is building for the government, has been completed, and was delivered to Capt. Charles Motley, at the Cleveland life-saving station Wednesday. Arrangements will probably be effected to build a house for it just north of the present station, with runways into the river and into the breakwater basin as well, so that the boat may be launched either way, as circumstances might require. The new boat is 26 feet long by 6 feet 8 inches beam, and 2 feet 7 inches depth. She has a centerboard and carries some canvas. Supt. Chapman was at the station when the boat arrived.

CHICAGO.

Special Correspondence to The Marine Record.

The war between the tug companies at this port is being fought persistently. There was an agreement entered into between the various companies at the beginning of the season, to tow at certain rates, with a proviso that if any company cut those rates, then a universal cutting of rates could be done by all. The Independent Tug Line, having learned that one of the rival companies was secretly towing below rates, commenced at once to cut its towing rates universally, and it is the intention to keep on cutting rates to the end of the season.

The Australasia-Majestic suit, when it comes to trial, will probably do much toward settling what is a proper rate of speed in Chicago River.

Grain freights are livelier this week. P. H. Fleming & Co. have chartered the City of Berlin for 150,000 bushels of oats to Buffalo at 1¼c. W. M. Egan chartered the Robert Mills for corn to Buffalo at 1⅛c. Tuesday. J. G. Keith & Co. chartered the steamers Majestic and City of Paris for oats to Buffalo at 1c. B. F. Davison last Friday chartered the steamer Maggie Duncan and consorts S. O. Neff and City of Toledo for dry lumber Duluth to Chicago, at $1.87½.

The Independent Tug Line has exchanged the schooner John Raber to C. L. Wood, of Chicago, for real estate valued at $1,000.

The heavy gale from the northeast Monday night, drove back to this port, the schooners Cora A., Olga, Kanters, and Ford River, also the steam-barge Maggie Marshall and several others of the lumber fleet which were running down the lake, light.

Business for the month of July with the Marine Iron Works, Chicago, has been excellent, especially as regards orders for marine engines and boilers, propeller wheels, etc. Several very complete outfits of marine machinery being built by them far boat-builders. The engines ranged in sizes from 5x5 to 16x16 and with a fair sprinkling of compound condensing engines.

The Peabody Coal Co. commenced unloading the barge Miztec, Tuesday morning with the W. S. Goble Co.'s new patent hoisting derricks recently erected on their docks. Their new style clam shovels and carriage worked very successfully. The Miztec was loaded with large egg coal and the shovels filled as easily as the old style of shovel would fill in chestnut coal. The cost of unloading will be about three cents per ton, when the men become expert at handling the machinery.

The steamer Manitou broke a blade of her wheel on two trips last week, and was compelled to go to the dry-dock twice to have new blades fixed.

The Philadelphia & Reading Co. is building large coal docks at South Chicago, which will add greatly to the importance of the Calumet river.

A U. S. dredge is cutting a channel at Saugatuck for the fruit boats.

The little steamer Emma Thompson was again sold at Marshal's sale Wednesday, for debts aggregating $9,000. She was bought by Brice Miller for $700, The schooner Unadilla has been libeled for debts amounting to $2,000, and will be allowed to be sold. Owing to the growing tendency in this direction credit is being curtailed.

MILWAUKEE.

Special Correspondence to The Marine Record.

The schooner Manatee was sold last Thursday by the U. S. Marshal to satisfy a claim brought against her, held by Joys Bros. Henry Nelson bought the schooner for $275.

Ann Arbor ferry steamer No. 1 has been placed in ordinary.

A dredge has been at work on Sturgeon Bay canal for a week or more, widening the channel 60 feet. The cut will be 14 feet deep.

Twenty-three boats brought 39,346 tons of coal to this port last week.

The yacht Priscilla, of Cleveland, is cruising in this neighborhood, but will return to Lake Erie in time for the Put-in-Bay regatta, although she will not enter the races.

The dock in front of the Northwestern Elevator is being built. The work is being done thoroughly, and will occupy some time.

PORT HURON, MICH.

Special Correspondence to The Marine Record.

There is very little work at the shipyards and dry-docks. The Wolverine has a life-boat contract for the U. S. government, which keeps about 20 men at work.

The tug Champion brought in a large raft for N. Mills & Co., at Marysville, last Friday. The tug Sumner brought in two large strings of timber for Howard & Co.

There have been four cargoes of pulpwood at the fiber company's dock, beside one load of coal this week.

River passenger travel is very heavy, both the Mary and the Red Star liners being kept quite busy. The regatta at St. Clair this week brought a large trade to the river liners.

The steamer Argonaut, owned by J. E. Mills and F. D. Jenks, of this port, has had both hull and machinery thoroughly overhauled, and has been put in the first class. She has also been painted with the line's color of bronze green. She is now on her way from Escanaba to Cleveland with pig iron.

The steamer Arthur Orr struck near the Fort Gratiot light-ship, and is here lightering a part of her cargo at Miller's coal dock, in order to enter dry-dock. She has one forward compartment full of water.

The schooners E. C. Roberts and C. N. Johnson are in ordinary here.

BUFFALO.

Special Correspondence to The Marine Record.

The Enquirer, one of the best marine papers in Bufialo, has just put in a new, up-to-date Hoe press, in addition to its already good equipment.

The stacks of the North Land were given a new coat of paint on the last trip down. Some inside painting was also done.

The Chicago tug Raber got aground near the light-house pier Monday, and the Fabian had to help her off.

All the tugs of the Hand & Johnson and Meytham lines are being equipped with fog bells, placed on top ot their pilot-houses, to comply with the White law.

The excursion boat captains are being hauled up before the inspectors for sounding cross signals when meeting. An afternoon paper got its wheel chains badly mixed this week when trying to explain the matter.

The board of army engineers appointed to plan a project for improvement of Buffalo Harbor have reported in favor of an extension of the breakwater to Stony Point, as against the shore arm proposition. They estimate the cost at $2,200,000.

DETROIT.

Special Correspondence to The Marine Record.

The friends of Dixon Chadwick, formerly watchman on the schooner Wadena, want to know where he is.

Capt. Alfred Smith will sail the steamer George Farwell, now nearly finished at Marine City.

Edward Henkel is said to be well satisfied with the performance of his steam-yacht Azalea since she came out. He took a trip to the Thousand Islands and return, a cruise of about 1,200 miles, on 21 tons of coal, the yacht being under steam 16 days. The Detroit Boat works, which built the Azalea, took the Lucille in part payment, and now offers her for sale for $4,000.

The collector at Amherstburg has found a derelict which nobody claims. It is a black canvassed schooner-yacht.

The Fessenden has returned from her inspection tour on Lakes Michigan and Huron. She boarded 64 vessels, of which 22 were reported for violations of the navigation and revenue laws.

DULUTH AND SUPERIOR.

Special Correspondence to The Marine Record.

The Duluth & Iron Range R. R. has decided to unload coal cargoes at Two Harbors by day labor instead of by contract, as is the usual practice. The men employed will be placed regularly upon the company's pay rolls.

The Lehigh Coal Co., in Duluth, has unloaded a coal cargo at its dock with two derricks, each averaging, during actual working time, 63 tons per hour. With a third derrick in operation and a few improvements to be made, this company expects to unload 2,000 tons in ten hours. The Bogle clam shell scoops are employed.

The steamer Nyanza is here waiting to get her coal unloaded so she can get into the dock. She is detained by a dispute by the consignees and the underwriters as to the damage to the coal. Her late adversary, the Northern King, arrived in port with disabled steering gear.

Some of the vessel men are beginning to call Capt. Singer's tugs the White Line, and the line will probably be given that name. The Abbott was given a coat of white paint this week. Capt. Singer has bought the tug Medina from Capt. C. Barker, of Ashland, giving the line seven tugs.

ASHTABULA.

Special Correspondence to The Marine Record.

The steam-yacht Florence, which capsized when launched at the builders' yard at Madison, is completed, and is now in commission. She is the property of C. H. Hopper, and has a fine hull and the most modern machinery. She makes 12 miles an hour without exertion.

Loui Kalbz, who had his spine injured by falling into the hold of the St. Paul last week, is still in a critical condition.

Work began Monday on the improvement of the Youghoigheny dock, a large force of men being put to work. A space of 250 feet of the dock will be entirely rebuilt. The new King portables are being tested here this week. No records are being made, but the machines are being given complete adjustment. The men operating them are not yet experts at handling them.

TOLEDO.

Special Correspondence to The Marine Record.

Yachtsmen are complaining that the dump scows use insufficient care in disposing of mud, and that they are forming shoals in Maumee Bay, which prove very annoying to small boats.

Capt. Gillespie has been given a contract to put larger riprap rock around the range light.

The steamer Samuel Mitchell broke a bucket off her wheel in the straight channel here Sunday.

The steamer Saginaw is laid up here this week, having her boilers repaired.

James Rooney's dredge is deepening the channel at the Ohio Central docks. The railroad people will have a channel 200 feet wide dredged out to deep water abreast the foot of Jefferson street.

McNelley & Davis' dredge is deepening the water at Corn & Churchill's iron elevator.

SANDUSKY.

Special Correspondence to The Marine Record.

More police surveillance is needed on the docks. Several sailors have of late fallen victims to footpads.

There is to be, it is said, a large amount of ore handled over the B. & O. docks here soon, and a force of men are now fitting out the ore hoists for work Among the first arrivals will be the schooners Kate Winslow and R. Hallaran.

One hundred and eleven cars of coal were put into the Thomas Maytham last Thursday in 11 hours and 10 minutes.

Collector of Customs Herbert has fined the schooner Col. Ellsworth $10 for not having her port of hail painted on her stern. The Ellsworth has been lying at the Ayers dock in the west end, since last fall. She has just fitted out, with Captain Cain in command. The fine was paid under protest.

Up to date there have been unloaded at the Big Four docks thirty-seven cargoes of pulpwood, four cargoes of fence posts and one cargo of ore. The past two weeks have been the busiest of the season, fifteen vessels having been unloaded during that time. Nearly all of these cargoes were loaded directly upon cars for immediate shipment.

Dredges at work on the harbor front channel have been somewhat delayed this week on account of the high winds.

The John W. Moore, Onoko, Presley, Reddington, and Georger are under charter to load coal here at the Short Line docks this week. They will carry about 9,200 tons.

LUXURY ON PASSENGER LINES.

Every year finds some improvement necessary in the interior arrangements of passenger steamers in order to bring them up to the modern requirements of the passenger trade. Nobody realizes this more than does General Manager T. F. Newman, of the Cleveland & Buffalo Transit Co., and he is sparing no pains to utilize and arrange the space in his new steamer now building by the Detroit Dry-Dock Co., at Wyandotte, to the best advantage of the passengers, and consequently, the line itself.

While the form of the steamer does not permit of more than the number of staterooms which would ordinarily be allotted to a boat of her dimensions, yet her greater width as compared with side-wheel steamers already built, allows of increasing the size of the staterooms, which is always a desirable feature.

The parlors in the new steamer will not be aft of all the state-rooms, but there will be an ordinary stateroom aft, on each side. Just forward of this will be two parlors on each side, with a bathroom between, which will be so arranged as to be attached to either of the parlors. The after stateroom is also connected by a door with the after parlor, and the two can be connected if it is desirable. In this way a suit of rooms can be secured which will be unsurpassed for practical luxury. Mr. Newman is enthusiastic over the beauty and possibilities of the modern plumbing, and the steamer in that respect will probably be a marvel.

The service of the Cleveland & Buffalo boats require ample dining room space, and Mr. Newman and Mr. Kirby, of the dry-dock company, put their heads together and have evolved a great plan. On the lake side-wheelers the cabin space aft of the clerk's and steward's offices has been used as a sitting room for such passengers as had no staterooms. By moving the after bulkhead still further astern and cutting an opening in the middle of the deck, it has been arranged that the descent to the dining room shall be from this main deck cabin, entrance to which is had on either side of the dining room companionway, which is protected by a handsome balustrade. The stairway will divide and the dining room be reached on either side, the cashier's desk being located between the two flights of stairs, as on the Northern Line steamships. This shows, on entering, the full expanse of the large dining room. In case of an overflow, or of a private party, the main deck cabin can easily be utilized, and to make the arrangement still more convenient, private dining rooms 10 x 12 feet will be constructed just back of the clerk's and steward's offices, for the convenience of small parties.

The old system of locking staterooms will be dispensed with, and instead of the key remaining in the custody of the holder of the lower berth, small latch locks with steel keys will be placed on the doors and both occupants will be furnished keys. The catches usually fitted to these locks will be dispensed with, so that the stateroom door will be certain to lock automatically whenever it is closed. This will prevent much annoyance and some thefts.

THE NEW DREXEL YACHT.

The Alcedo, the new Boston-built steam-yacht of G. W. C. Drexel, of the Philadelphia Ledger, was given a trial trip last week. On board, besides the representatives of the owners, were Messrs. Waterhouse and Cheeseborough, designers of the yacht; Mr. Thomas Hibbard, of the George Lawley & Son Corporation, the builders; Mr. F. O. Wellington, of the Ford River Engine Co. The performance of the yacht was in every way satisfactory to owners and builders, and gave every indication that she would easily make the required speed of 14 knots per hour.

The Alcedo is flush decked, and is 124 feet long over all and 102 feet on the water line, by 16 feet 2 inches beam and 6 feet 6 inches draft. She is of composite construction with steel frames and hard pine planking. Four steel bulkheads divide the yacht into five watertight compartments. The cabin accommodations are roomy and convenient. Most of the finish is in mahogany.

The machinery consists of an Almy boiler, manufactured by the Almy Water Tube Boiler Co., of Providence, R. I. It furnishes steam to a triple expansion engine with cylinders 10, 15 and 25 inches in diameter, by 13 inches stroke. The circulating air feed and bilge pumps are independent. The yacht is lighted throughout by electricity, and is furnished with an auxiliary storage battery for use when it is necessary to shut down the dynamo. The coal bunker capacity is 18 tons.

SAULT CANAL MACHINERY.

The gate machinery of the new St. Mary's Falls canal lock is already in place, and the minor apparatus is being rapidly fitted in. Besides the six machines which will be used in opening and closing the gates, the operating plant consists of twelve engines for opening and closing the valves, and two hydraulic pumps, with their accumulators and piping.

There is one gate machine for each leaf of the working gates, which are styled the upper, intermediate and lower gates. Each machine consists of two three-cylinder, single-acting hydraulic engines on one shaft. These engines drive a six-foot drum, on which the cables are wound.

The working parts are of the finest steel, with bearings of bronze. Each machine weighs about ten tons, and stands about five feet high. Six of the valve engines are at the upper and six at the lower end of the lock. They are direct-acting, horizontal cylinders, and move the valve by connecting rods which run from the crossheads to the valves. These engines are operated by vertical valves placed on the top of the south wall, which are connected with them in such a way that each valve controls two engines. The valves are 8 x 10 feet, of the best wrought steel, and are carried on solid steel trunions, 10 inches in diameter. They are three inches thick on the edges and sixteen inches in the middle. When they are swung open there is an effective passage of 64 square feet. A hydraulic capstan on the south side, at the upper end, and another at the lower end will be used in assisting vessels through the lock. They are driven by three single-acting, oscillating hydraulic engines, and each can exert a power of 19,000 pounds on an ordinary line.

In the basement of the power-house will be located two 30-horse power turbines, which will drive three 3-plunger, single-acting high-pressure pumps, which will deliver pressure fluid to loaded accumulators, where it will be stored under a pressure of 300 to 500 pounds per square inch, ready for use and delivered to the engines as required. The exhaust or discharge from the engines will be returned to the accumulators. The pressure fluid will probably be a limpid mineral oil, and will be used during the entire season. The present lock uses water pressure in summer, and oil during cold weather.

The operating machinery was built by the Variety Iron Works, of Cleveland, from designs furnished by Engineer F. M. Dunlap, who also superintended its construction. It varies much from anything in present use, and represents a combination of hoisting machinery with the best English hydraulic practice. The pumps were built by the Southwark Foundry and Machine Co., of Philadelphia, the engines by the Westinghouse Engine Co., Pittsburg, and the boilers by the Babcock & Wilcox Co., New York. There are three of the Westinghouse engines, of compound type, and 350 horse-power each, and it is estimated that the pumps can empty the lock, when necessary, in six or seven hours.

RAFTING LEGISLATION.

President Livingstone, General Counsel Goulder, and Secretary Keep, of the Lake Carrier's Association, after careful consultation at Detroit last week, decided that the rafting bill which passed the House of Representatives last summer, and which was nullified by a Senate amendment surreptitiously introduced, could not be improved upon in its original shape, and efforts will be made to have it enacted without amendment, during the coming winter. The bill provided that rafts in the lower lakes should not be over 1,200 feet long and 100 feet wide, and the rafts passing through the Sault not more than 600 feet long by 60 feet wide. The bill, as amended last year, was pigeon-holed at the request of the Lake Carriers, who preferred no legislation at all to the distorted specimen which came so nearly being enacted.

NOTICE TO MARINERS.

DUNKIRK PIERHEAD LIGHT.

Notice is given by order of the Light-House Board that on or about August 15, 1895, the color of the sixth-order fixed light, on the easterly end of the pier, SW side of the entrance to Dunkirk Harbor will be changed from white to red.

TESTING ORE HOISTS.

The King Iron Bridge Co. has just finished the erection of an eight-leg ore hoist on the P., Y. & A. dock at Ashtabula, and some tests are being made this week. The machine is not an experiment, as a machine of two legs was put up two years ago at Conneaut; but several improvements in the working parts have since been made, although the principle involved is the same.

The rigs resemble greatly those of the Brown ore hoists at a little distance. A boom, or apron, is let down over the vessel; there is about 180 feet of span between the supports of the elevated track, and about 88 feet overhang at the rear. There is an upper and a lower track, however, the rails being placed very closely together, upon which travels a carriage with heavily flanged wheels. An endless cable passes over sheaves on the upper and lower track, passing, of course, through a pulley in the part to which the bucket is hung, and also passing around a drum in the engine room. On the upper track the endless cable passes around a sheave that rides upon a carriage to which is attached another cable, the end of which is wound round a separate drum. By running this carriage up or down on the upper track, the working portion of the endless cable is lengthened or shortened, as the case may require, and the effect is that the bucket does not need to be hoisted to the full height before the conveying begins, but the hoisting and conveying can both be carried on at once, which will greatly facilitate the handling of ore. The ability of the machine to raise and lower the bucket while the conveyor is in motion gives great advantage to a skillful operator, and this is set forth as its chief merit.

FLOTSAM AND JETSAM.

Sault water, Aug. 1, 8 a. m., 14 feet, 4 inches.

Two dredges are deepening the river at the new ore hoists in Lorain.

More wreckage and freight srom the Chicora has been washed up near St. Joseph.

It is now guessed that the Canadian Sault canal will be open before September 1.

Oswego business men are considering ways and means to induce a freight boat line to stop at that port.

President Cleveland now has a new steam launch, 35 feet long by 9 feet beam, to use in his fishing excursions.

The revenue cutters are watching very closely for boats which are carrying passengers without proper licenses.

The old whaler Progress, which was brought to the lakes for the World's Fair, at a large cost, has been sold for $300, and is being broken up for junk.

Andrew Shaw, lightkeeper at Point aux Barques for 35 years, has resigned. He is 71 years of age and will spend the rest of his days on his 300-acre farm.

Cornwall canal contractors are busily repairing the damage done by the barge Kildonan last Saturday. The Glenora is still stuck, but will be floated soon.

Reports have gotten circulation that oil was being used on the Canadian steamers Majestic and Alberta, their respective owners have forbidden the captains to do any more racing.

The Valkyrie III, will have a set of steel spars, which are considerably lighter than pine. The mast is 105 feet over all, and 22 inches in diameter at the base. The Defender has an aluminum topmast.

Mr. E. C. Deane, editor and owner of the Racine Daily Journal, has been appointed by the Governor of Wisconsin to represent that state at the deep waterways convention in Cleveland in September.

The wages of men at Wheeler & Co.'s shipyard, West Bay City, have been increased 10 per cent. in all departments, except the riveters, who recently received an increase, and will get another advance on the next boat.

Allen Parnell, a member of Rochester division, New York Naval Reserve, got seasick and fell overboard from the steamer Bon Voyage last Thursday night, while on his way to join his company in camp. He was drowned.

The new dry-dock at Southampton, which is the largest in the world, has a floor length of 750 feet, and is 112 feet wide at the top and 87½ feet wide on the bottom. The with at the entrance is 91 feet, and the depth from top to floor is 41 feet.

$13.50, Boston and return via C. & B. Line Daily Steamers to Buffalo. Tickets on sale August 19th to 25th. For further particulars call on or address W. F. Herman, G. P. A., 137 River street, Cleveland, O.

AIDS TO NAVIGATION.

SURVEY OF SACKETT'S HARBOR.

The last Congress made an appropriation of $5,000 for the improvement of Sackett's Harbor, and Capt. Kingman is now considering as to the best method in which to apply this sum to the object. William Pierson Judson, United States Engineer, has been making a survey of the historic place and a study of its local conditions, past and present, which would have an effect upon the proposed works. Sackett's Harbor has been the United States naval depot and navy yard for Lake Ontario from 1812 to the present time, and was for many years the most important point on Lake Ontario. Much valuable information as to the past conditions will be shown upon the map and chart which Capt. Kingman intends to have published by the United States Engineer Department. Sackett is now, at the present extremely low stage of lake, a nine-foot harbor, but the material which makes it so shallow is soft mud which could be removed at a low cost.

COMMANDER DAYTON'S RECOMMENDATIONS.

The annual report of Commander J. H. Dayton, U. S. N., inspector of the ninth light-house district, says winter navigation appears to be on the increase, and recommends that "in erecting future stations it would bewell to provide for the extreme cold weather then encountered. This applies especially," he says, "to fog signals and to dwellings for keepers. During the coming year six new steam fog signals will be established on Lake Michigan, rendering the question of fuel supply, already a difficult one, very serious." Commander Dayton, in view of this, recommends the establishment near Cheboygan of a fuel station, and adds that the light-house tender Warrington should be fitted up as a fuel boat to supply all stations on the east and west coasts of Lake Michigan.

He recommends the establishment of a light and fog signal on Little Gull Island, and a light on St. Martin's Island. The chain of lights on the west coast, he says, would be complete if a coast light were erected at Point aux Barques, which is half way between Seul Choixand Poverty Island. There is forty-six miles of coast line between these points, at present unprotected, though at the last session Congress provided for a light at Sturgeon Bay canal, within this area, which has not yet been erected. The following recommendations arealso made: The removal of the fog bell at Tail Point, Green Bay; a lighted beacon in Green Bay harbor to make it accessible at night; a light-vessel at Peshtigo shoal, Green Bay, to cost $15,000, in place of the light authorized by Congress at its last session to cost $10,000; (he says he doubts if $10,000 would be sufficient to build this light, and that anyway a light-vessel would much better serve the purpose); a fog signal or bell at Little Traverse; a fog signal or bell on Grand Traverse; a steam fog signal at Michigan City.

Commander Dayton says it will soon be necessary to establish harbor lights on piers at Michigan City. Temporary lights are already maintained there. He says the numerous lights kept by fishermen on the north pier in Chicago harbor are very confusing to navigators entering the harbor, and legislation should be asked to prevent the exhibition of unauthorized lights on the piers in the near vicinity of aids to navigation.

HAY LAKE CHANNEL.

From General Superintendent E. S. Wheeler's annual report, it is ascertained that during the year the entire commerce passing St. Mary's Falls canal used the Hay Lake Channel, with the exception of a few boats and rafts. The total freight carried was 13,636,270 tons, and the cost of transportation, as determined for the year 1894 was .99 mills per mile ton.

The distance saved by the Hay Lake Channel is 11 miles, and the total cost of carrying the volume of freight above stated that distance would be $148,499. This is about 7 per cent. of the cost of the new channel, and, of course, can be classified as a saving. As the Hay Lake Channel now stands it has cost the government $2,165,000. The original estimate of the cost was $2,650,000, but owing to the improved methods of work and other causes the cost was greatly lessened.

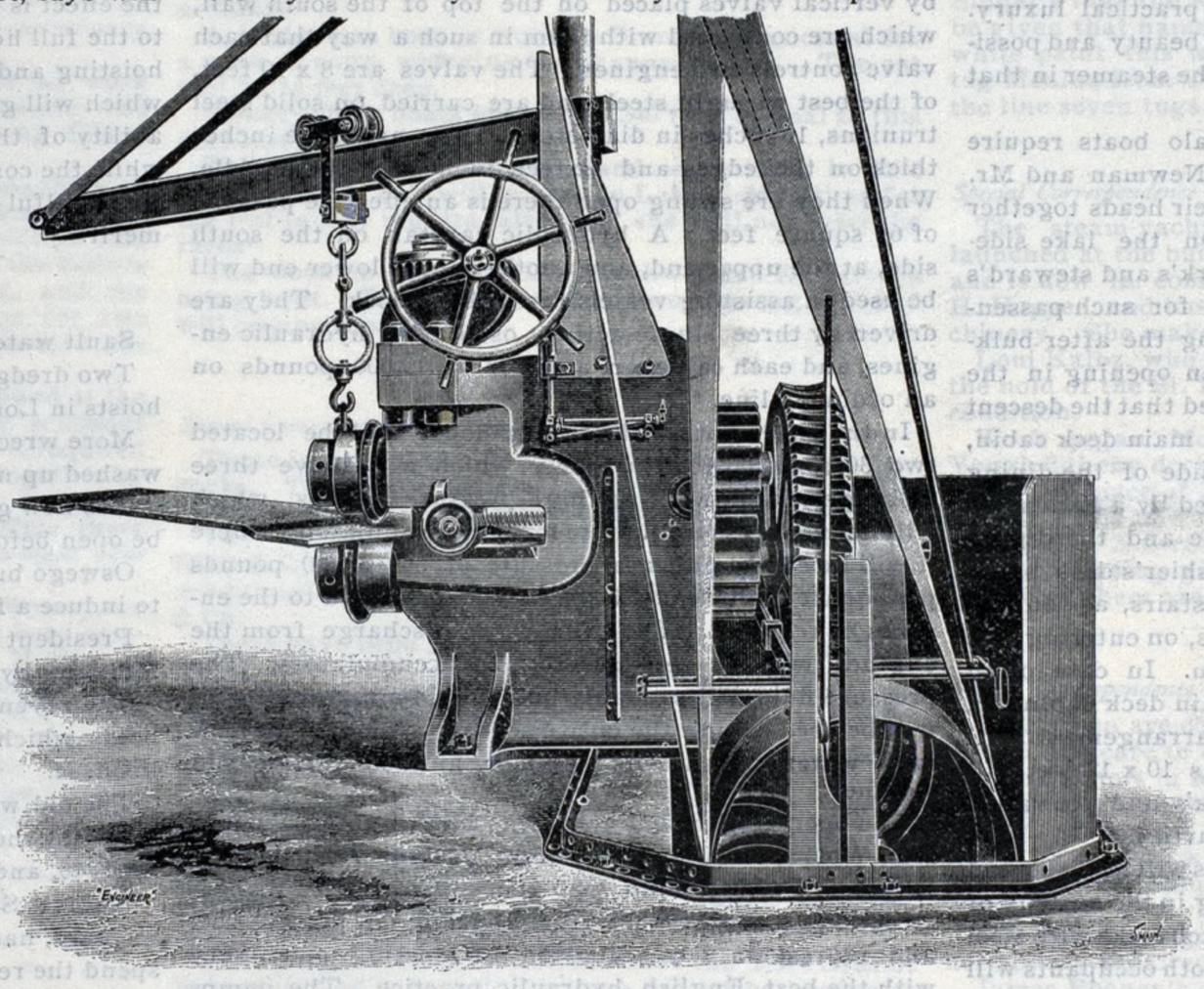
Just as soon as the new range lights are placed a vastly larger number of boats will run the channel at night than was the case with the old channel.

COMMANDER MEAD'S REPORT.

The annual report of Commander W. W. Mead, inspector of light-houses for the eleventh district, makes a number of recommendations, which include the enlargement of the keeper's residence at Windmill Point, at the head of the Detroit river, and the repairing of the piling of the cluster at Grosse Pointe. Commander Mead says the light-ship off Grosse Point is becoming unserviceable, and that since the adoption of mineral oil lanterns at the Fort Gratiot range lights instead of electric lights, no complaints have been heard. His recommendations are accompanied by the estimated cost of the improvements suggested.

DEFENSE OF SANDUSKY HARBOR.

The Sandusky Register explains the bottom damage recently received by the Thos. Maytham at that port as follows: "The accident occurred in the channel, a short distance from the Short Line docks. It was simply the result of carelessness on the part of the dredge men at work on the harbor front channel. While they were at work they came across a large boulder which was too big for their dipper, and the boulder rolled into the middle of the channel. It was allowed to remain there for several hours, and vesselmen were not informed of the obstruction in the channel, and when the Maytham was being towed out by the tug Peerless she struck it. She was released a few hours afterwards and went up with her cargo of coal. There is low water at all ports and Sandusky's harbor is undoubtedly one of the best along the chain of lakes."



MACHINE FOR "JOGGLING" PLATES.
(Courtesy Engineer, New York.)

TOO FREQUENT.

The recent bursting of a hot water pipe on the torpedo boat Ericsson, in which five of the crew were terribly scalded, once again calls public attention to what is too frequently happening on steam vessels. In European navies such disasters have a record of ominous frequency, and the Ericsson affair is not without its warning to American marine. Heavier pressure and increased speeds are in fashion, and the risks incurred have their price. It is known that on torpedo boats the heat endured by the engineers, etc., is next to being cooked alive. This is inseparable from the speed maintained, but it seems that something remains to be done in securing the steam and hot water pipes in the engine and boiler rooms of steamships.—Railway Review.

NEW SYSTEM OF PLATING.

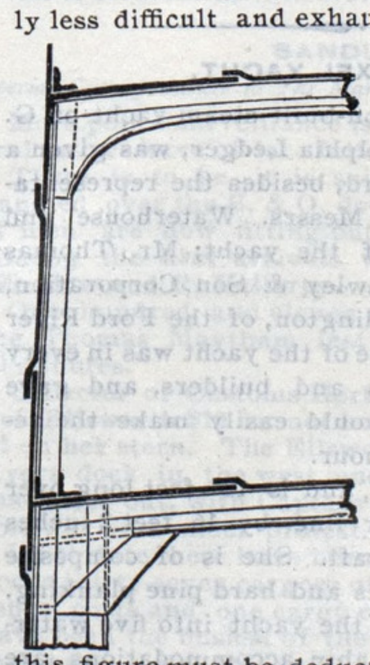
(ILLUSTRATED.)

A system of plating ships which has been patented is now being adopted by W. Doxford & Sons, of Sunderland, Eng., builders of the Progressist and other turret steamers. The system in question is the dispensing with packing or lining pieces throughout, and at the same time securing, it is claimed, an equally neat, tight and strong job. Packing, while not contributing to strength, is an addition to weight, the absence of which is much better than its presence, if the structural items proper can be manipulated so as to bear closely "metal to metal."

At present, the shell and deck plating, with strakes worked on the usual raised and sunk, or "in-and-out" principle, have packing or filling slips fitted on every frame or beam, behind the outside or raised strakes. The new system dispenses with all such fillings by joggling the edges of each outside strake over the edges of the adjoining inner strakes; every strake thereby being brought right home to the frames or beams without liners. For the joggling Messrs. Doxford have had made a special machine tool. The edges of the plates forming the outside strakes are run between rollers, which rollers are so shaped and adjusted relatively to each other as to form the joggle or indent required as the plate passes through.

The system has been applied partially to one of the vessels recently built by Doxford & Sons, and to another vessel just launched the system has been applied throughout. No difficulty has been found in carrying the joggling to the ends, where owing to the curve and twist of the strakes, difficulty might have been anticipated. This even applies to outer plates, or those under the counter, and plates above and below the propeller boss, as no difficulty is experienced in passing plates of any set through the joggling rolls.

The vessel just finished is 2,700 tons register, the total weight of the metal worked into her structure being about 1,300 tons. As compared with a similar vessel in which the joggling system had no place, there has been a saving in weight of hull of about 38 tons, or a net gain in material saved of 2 per cent. Three-fourths of this total is made up of the weight of packing and liners dispensed with, and close on one-fourth of it by the weight of cement saved, owing to the outer strake of plating on the bottom being brought up close to the frames. As regards labor, the gain is also clear and considerable. The work of riveting through two-ply of material is obviously less difficult and exhausting than through three-ply, as is the case when packing is present. The work of fitting, tapering, templeting and punching the packing pieces and liners is in itself no small item, and dispensing with it means, in the case of large vessels, a saving of some consequence. To be deducted from the total saving in labor and material is the cost of joggling the plates by the special machine, which, however, is only about 10 per cent of the total. The gain in carrying capability is not quite equivalent to the 38 tons of material saved, because from this figure must be deducted some 10 tons of loss in displacement due to the finer form of the hull caused by the inward indent given to the outer or raised strakes of plating by this system. The perpetual gain, however, of some 28 tons carrying power secured by this system in a vessel 2,700 tons register over a vessel of the same size built on the ordinary principle, is a consideration which shipowners will be glad to note and appreciate.



IN THE ENGINE ROOM.

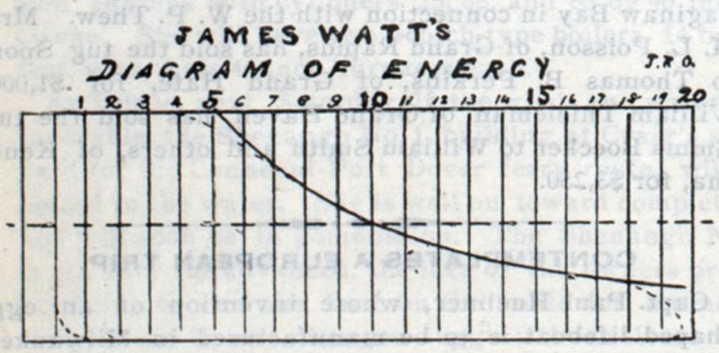
WATT'S MULTIPLE EXPANSION ENGINE.

BY JOSEPH R. OLDHAM, N. A. AND M. E

At a time when the greatest crisis in the history of a free people had about reached its maturity by the signing of the Declaration of Independence, another crisis was also nearing its fulfilment some three thousand miles away. Coincident with the dissipation of autocratic misrule forever over this country, came the dispersion of much ignorance in connection with steam and steam engines, by the enlightened labors, if not solely by the original discoveries of James Watt; these stupendous events happened just about half a century after "Great Newton spake and all was light." The great pioneer of the steam engine was laboring assidiously to perfect the most civilizing and peace-distributing agent known either to the arts or sciences (I hazard this opinion, notwithstanding William Ewart Gladstone's assertion that "the violin has done more to civilize mankind than the steam engine"), and it was in the year in which our colonists declared their independence that Watt declared the nature of his invention, in the British patent office, for utilizing steam expansively. Think of that, and then cast your retrospective mental vision upon those stupendous buildings which were in Chicago some two years ago, and on which the name of Watt stood emblazoned, and consider "What a mighty leap was that." Without the steam engine, no such buildings could have been constructed in ten times the period available.

It appears that as early as 1776, a date well known to all Americans, Watt made experiments on the expansion of steam, and about that time he altered an engine at the Soho works so as to test the result of an early cut-off. Six years later he took out a patent, in the specifications of which he states that his improvements consist in admitting steam into the cylinders of the engine only during some part or portion of the stroke of the piston, and using the elastic forces wherewith the said steam expands itself in proceeding to occupy larger spaces, as the acting powers on the piston through the other part or portions of the length of the stroke of the said piston. This was the first published example of the diagram of energy as applied to a steam engine.

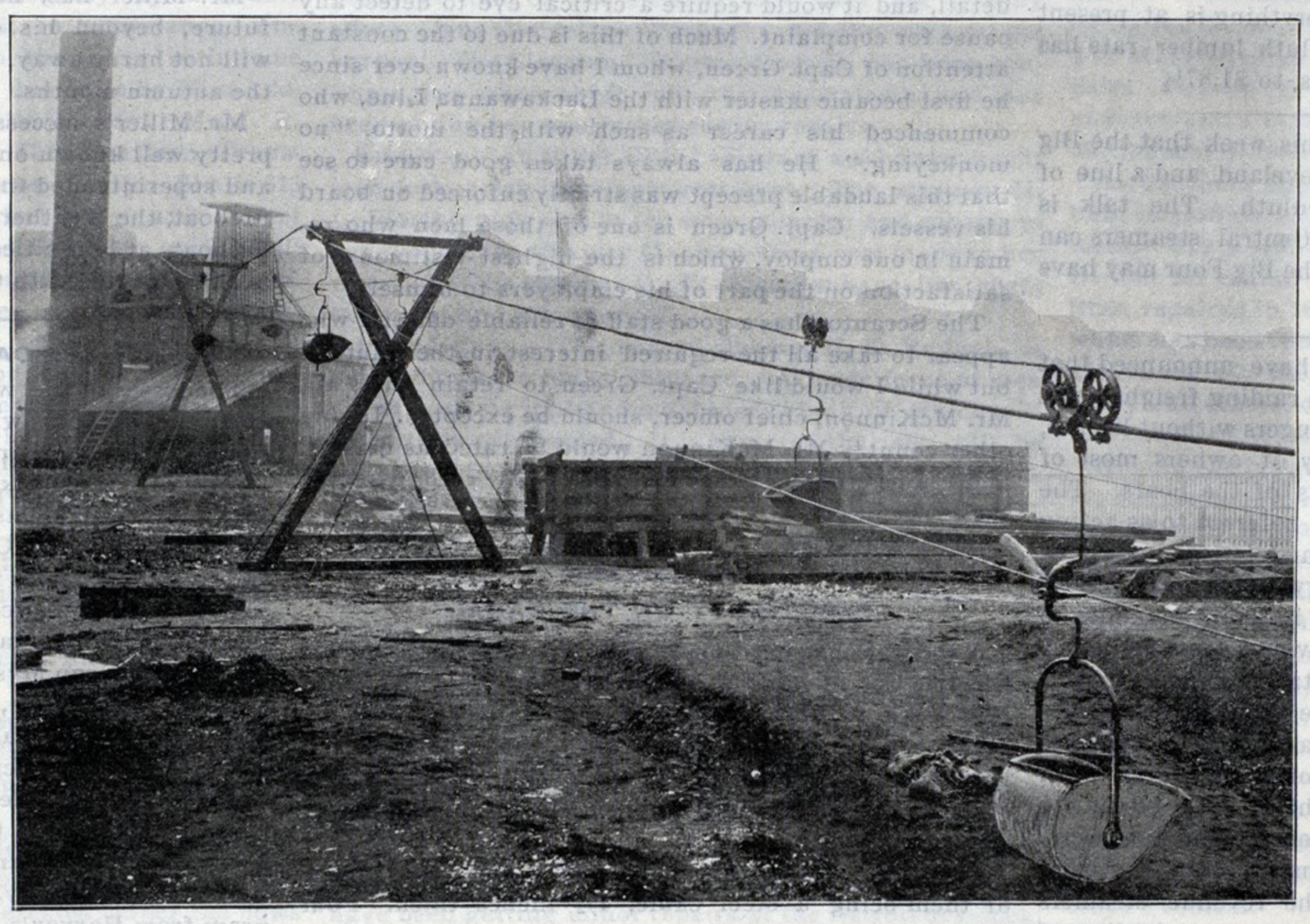
In the accompanying sketch consider the horizontal lines above and below the center line as a sectional view of the walls of a cylinder. Divide the length of the cylinder into, say, twenty equal parts, allowing for clearance. Assume that steam at the atmospheric pressure (14 pounds on the square inch) is admitted freely while the piston travels over five divisions and is then cut off. Hence, at division 10 the pressure will have fallen to ½ x 14, or 7 pounds. At division 15 it will be ⅓ x 14, or 4⅔



pounds, and at division 20 it will be ¼ x 14, or 3½ pounds. Whereby it appears that only one-fourth of the steam necessary to fill the whole cylinder is employed, and that the effect produced, stated briefly, is equal to more than one-half of the effect which would have been produced by one whole cylinder full of steam. The expansive principle is the same, though steam be expanded in one cylinder, as above described, or in several cylinders.

A Brown hoist would not be made any higher by substituting a six-ply rope for the single steel wire now used, nor would any absolute gain result from the change. It is the same with the bulk of steam, the energy of which is not increased by the addition of any number of cylinders; the steam will give up the same amount of energy if expanded in one (low pressure) cylinder, only as it would if previously expanded by steps in several cylinders, though practical difficulties make it necessary to subdivide the total expansion into separate stages; but this has nothing to do with the principle of expansion as delineated by Watt.

Although increase in steam pressure has been the chief aid to progress in marine engineering, it is remarkable to observe how cautiously and slowly such increase came about. Up to the year 1850 the load on the safety valves, as a rule, did not exceed 10 pounds per square inch. Ten years later the corresponding boiler pressure was 20 pounds. In 1865 it had risen to 30 pounds. In 1872 the load on safety valves of a number of typical steamers was 52½ pounds per square inch, but in 1874 a mighty leap was taken by the late Dr. A. C. Kirk, of the firm of Robt. Napier & Sons, who designed the triple expansion engines of the Propontis,



BROWN CONTINUOUS ELEVATED TRAMWAY.
(Courtesy of Railway Review.)

which were worked by the Rowan water tube boiler, with about double the last pressure mentioned; a few years later several small steamers—notably the S. S. Anthracite, which was constructed under the superintendence of the writer—were fitted with the Perkins engines and boilers, working at about 300 pounds pressure, but such high pressures were rapidly abandoned, and in 1891 the average was 158½ pounds. Steam pressures are now rapidly increasing, and it may be that before many years such pressures as the Anthracite carried with her Perkins boiler will be the rule rather than the exception.

A CONTINUOUS ELEVATED CARRIER.

(ILLUSTRATED.)

It sometimes happens that property with a narrow water frontage would be available for dock purposes, were such unloading machinery available as would permit of carrying coal, ore or other bulk freight back for a considerable distance from the water. The accompanying illustration shows the general arrangement of an apparatus of this sort, the Brown Continuous Elevated Tramway, which is well adapted for the purpose mentioned, and for carrying coal, ore and other materials over rough or hilly country where it is impracticable or too expensive to build surface railroads. Heretofore tramways for this purpose have been made of wire cable either traveling or stationary, carrying buckets secured to it or suspended from traveling carriages. The Brown tubular tramway was designed to avoid the objections which have been encountered due to expansion and contraction of the cable, and the unreliable supporting points of the piers, which often cause derailment of the carriages, on account of vertical vibration of the cable. Stationary cables, on account of the character of their surfaces, cause rapid wear of the sheaves of the carriages, and such long lines of cables as are required lead to great expense in transporting these outfits over rough country.

This last objection is completely overcome by the method here shown, as this tramway is constructed in pieces which weigh from 50 pounds upward. It is constructed of wrought iron pipes of suitable lengths for transportation, coupled together and supported upon piers in spans of 150 feet or more. The ends of the spans approaching the piers from opposite directions are coupled to a metallic supporting stand which presents a curved surface at its topmost portion corresponding to the gradual bend of the piping. This makes the joints at the supporting piers practically a continuation of the exterior surfaces of the tubes themselves. The attachment of the pier leaves the stand free to swing, as the loaded carriages may in succession travel up toward and then away from it, relieving the rail and its connections at the supporting point from the twisting of cross strains occasioned by the passing load.

The pipes between piers are connected by splicing cores that fit snugly within the bores of each of the adjacent pipes, the ends of which butt together and are securely fastened with countersunk rivets. This form of construction gives strength with minimum weight, together with a smooth cylindrical track presenting little resistance and causing little wear to the sheaves of an ordinary conveying machine. Safety guards are provided upon the carriers to prevent derailment. The expansion or contraction is confined between supports and its effect is imperceptible. The buckets are strong and light and constructed of steel with no counter-weights. It is said that this tramway can be operated upon grades steeper than can be used for wire cables, and it is always said to be economical for distances up to ten miles. This plant includes improved terminal facilities for automatically loading and unloading the buckets. At the loading terminal an automatic rotary hopper is used around which the buckets pass and from which they are filled while in motion.

The carriages are of malleable iron with cast iron wheels properly stored to fit the pipes. The journals are of steel passed into hubs of the wheels and turn in self oiling boxes of cast iron. These boxes are made to hold sufficient wool waste and oil to dispense with the necessity of re-oiling for months. The boxes may be removed without disturbing the carriages and are made interchangeable. Precautions are taken against parts which may be jarred loose. The bent part of the suspender rod from which the bucket bale is hung is made of malleable iron and is so constructed as to admit of easy removal of the bucket from the line by hand, and yet to prevent accidental detachment in traveling. The piers are of timber averaging about 15 feet high and varying with the profile of the ground. Spans of 200 feet to 300 feet can be used and the piers can be framed either of poles of timber stuff and should be 4x4 inches or 6x6 inches in section. The loading of the buckets can be done either at the terminal or along the line. The buckets have steel sides and flanged steel bottoms. The bale and bale-eye are one piece of malleable iron, the latches being of the same material. The terminal sheave at the upper end is provided with band brake and regulating lever to govern the speed of the tramway when working by gravity. It may be operated by either gravity or by power. The pulling rope is connected with the hanger of the carriage in such a manner as to dispense with side supporters or parts which would cause wear of the rope. This rope is of crucible steel wire and passes over terminal sheaves 10 feet in diameter, which are lined with maple filling pieces placed on the end of the grain. At the lower terminal an automatic dumping arrangement is provided. The capacity of the plant illustrated is from 100 to 150 tons per day of ten hours. The principal claims are simplicity of construction, ease of erection, and the portable character of all its parts. These advantages are combined with low cost of construction, operation and maintenance. The apparatus is manufactured in Cleveland,

THE MARINE RECORD

ESTABLISHED 1878.

PUBLISHED EVERY THURSDAY, AT 144 SUPERIOR ST., (LEADER BUILDING), CLEVELAND, O.

IRVING B. SMITH, CAPT. JOHN SWAINSON, } . . . PROPRIETORS

BRANCH OFFICE:

CHICAGO, ILL., ... 238 Lake Street.

THOMAS WILLIAMS, Associate Editor.

SUBSCRIPTION.

One copy, one year, postage paid, . . . $2 00
One copy, one year, to foreign countries, . . $3 00
Invariably in advance.

ADVERTISING.

Rates given on application.

Entered at Cleveland Post Office as Second-class Mail Matter.

CLEVELAND, O., AUGUST 1, 1895.

LABOR troubles are having the effect of preventing any advances in coal and ore, and everything is at present awaiting an adjustment. The Duluth lumber rate has advanced, at least in some instances, to $1.87½

THERE have been some reports this week that the Big Four would establish docks in Cleveland and a line of steamers between Buffalo and Duluth. The talk is hardly plausible, as the New York Central steamers can easily take care of such freight as the Big Four may have for the water.

THE daily papers on the lakes have announced that the revenue cutters were engaged in raiding freight boats which are engaged in carrying passengers without license, thus interfering with the hospitality of owners, most of the passengers carried being guests of the boats. The revenue steamers were erroneously referred to as acting under the orders of Secretary of War Lamont, instead of by the instructions of the Treasury Department, under which they always act. The error in itself amounts to little, but it has, unfortunately, provoked some malicious comment in connection wiih Secretary Lamont's recent trip down the lakes on one of the big Northern Line steamers. These reflections are as nasty as they are groundless. The hospitality mentioned interferes in an almost impercepiible degree with the business of the big passenger steamers, and the management and the Secretary are alike incapable of resorting to such means to beat up trade. The mission of the revenue steamers seems to be only in line with a rather more strict line of policy than has heretofore ruled on the lakes, and is possibly a spasm the effects of which will soon pass off.

A NEW branch of marine service will be inaugurated during the coming week by the first fleet of the Cleveland Steel Canal-boat Co., leaving Lorain for New York via the Erie canal, with a cargo of rails. No matter how much data is procured regarding such a venture before it is put into actual operation, the movement must remain under the head of experiments until some actual work is done; but, the company has made its start in such a way, and with such equipment that its success seems assured from the start. Three barges are to be towed to Lorain this evening, and loading with heavy street-car rails will begin at once, while the steamer will go to the same port later in the week, with the fourth barge, and the trip to New York will begin early next week. The advent of the boats on the canal will be watched with interest, and their return eagerly awaited. Nothing is to be done by the direction of the company until this first round trip is completed. There was never anything of the sort built in the construction of which everything was foreseen, and if some slight changes of plan should prove necessary in the construction of the other boats of the line, this would be no argument against success. The long hatches of the boats render them extremely convenient in loading such unwieldy freight as rails and iron pipe, as compared with the lake boats, and this fact suggests a possibility of a modified form of this craft being placed in service on the lakes some time. The enterprise is one that certainly merits encouragement on the part of shippers of heavy freight. The steamer Alpha will carry about 200 tons, and each of the barges about 270 tons.

WELL BUILT AND WELL KEPT.

To the Editor of The Marine Record:

Just seven years ago your correspondent, then a representative of THE MARINE RECORD, went on the steamer Scranton, of the Lackawanna Line, on her maiden trip to Buffalo, and his impressions were duly recorded in your columns. It need hardly be said that the opinions then formed of the vessel, justified by subsequent events, were very favorable to her builders, management and all concerned. Since that time I have always taken a great interest in the Scranton, and have just made a second trip on her from Chicago to Buffalo. The steamer is a credit to her builders, the Cleveland Ship Building Co. That the Scranton is not quite so fast as more recent boats is, of course, to be expected; but she is a good steady, sea boat, and it is seldom advisable to sacrifice economy for speed. The Scranton would pass for a new vessel anywhere, the only indication to the contrary being found in her deck sheathing. The whole vessel, including her well-kept machinery, gives evidence of every care and attention to the most minute detail, aud it would require a critical eye to detect any cause for complaint. Much of this is due to the constant attention of Capt. Green, whom I have known ever since he first became master with the Lackawanna Line, who commenced his career as such with the motto, "no monkeying." He has always taken good care to see that this laudable precept was strictly enforced on board his vessels. Capt. Green is one of those men who remain in one employ, which is the highest testimony, of satisfaction on the part of his employers to himself.

The Scranton has a good staff of reliable officers, who appear to take all the required interest in their duties; but while I would like Capt. Green to retain them all, Mr. McKinnon, chief officer, should be excepted. In any other country Mr. McKinnon would be rated as master, and I hope ere long to see his merits duly recognized by such promotion.

H. I. L.

Buffalo, July 30.

ELECTRICTY ON THE CANAL.

A contract has been made with the Cataract General Electric Co., of Buffalo, by the Trenton Iron Works, of New York, for the construction and equipment of an experimental line of four miles, for towing boats on the Erie canal by electricity. The line is to be completed in 60 days, and will cost $5,000 per mile for both sides of the canal.

The poles will be of steel, and 16 feet high, on top of them being a steel cable, 1½ inches thick. Four inches below this another cable one inch thick, will be stretched. A small car, or traveler will be suspended from the upper, and will travel on the lower cable. The current will pass from the upper to the lower cable, operating a Tesla motor which will turn the shaft of the traveler, to which the tow-line will be attached. This method is now in use for logging purposes in South Carolina.

LAKE CARRIERS' FINANCE COMMITTEE.

A meeting of the finance committee of the Lake Carriers' Association is to be held Thursday to discuss the fueling situation in Buffalo. It is not known that any action will be taken. The fuel shippers appear to be in a decidedly conciliatory mood, however, as they are offering for $2 a grade of Pittsburgh coal that sells for $2.15 at Ashtabula, the rail freight to Buffalo being 25 cents more than to Ashtabula. Secretary Keep came up from Buffalo Thursday morning to attend the meeting. He says that the enrollment of tonnage is excellent, the total tonnage being over 600,000.

RAISING THE CAYUGA.

The question of being able to raise the sunken steamer Cayuga is looked upon with a good deal of confidence by the lake wreckers, and a number of them have filed very good proposals on raising the steamer. Nothing has been decided upon, but gossip has it that Murphy Brothers, of Detroit, will get the job.

add shipbuilding

MR. MILLER RETIRES.

The many friends of Mr. Walter Miller, chief engineer of the Globe Iron Works Co., will be surprised to learn of his retirement from this position. Mr. Miller placed his resignation in the hands of General Manager Pankhurst last week, and expects, as soon as he can dispose of his interests with the company, to take an entended tour through Europe, visiting the various shipyards, and availing himself of such pointers in his line as he may pick up.

Mr. Miller has been with the Globe Iron Works Co. for 15 years, and has a reputation that is by no means bounded by lake territory. He is well known for his originality, and his continual ambition to improve upon existing methods. The Globe steam steering gear and and the Globe windlass are both his inventions, but were assigned by him to the company at the time the patents were secured. He has a patent on a windlass reversing gear, however, which he still holds, and which is in use on several types of windlasses. He also designed the machinery of the Cleveland City Railway Co.'s power plant, near the viaduct, Cleveland, by which the Globe triple-expansion engines are connected direct with the dynamos, this plant being one of the finest and most complete electric power houses in the country.

Mr. Miller has, he says, no definite plans for the future, beyond his contemplated European trip. He will not hurry away, but expects to go sometime during the autumn months.

Mr. Miller's successor is Mr. William Cowles, who is pretty well known on the lakes already. He designed and superintended the construction of Cleveland's first fireboat, the Weatherly, and also designed several other fireboats at lake cities. For several months past he has been connected with Cramps' shipyard, in Philadelphia.

THE CASUALTY CHAPTER.

The losses of the week were chiefly confined to the older class of boats which have long out-lived their usefulness. The old barge Republic, which went down off Lorain at 5:30 o'clock, Tuesday morning, was built in 1854, and was not classed in this year's Inland Lloyds. The wreck afforded Captain Jim Bowen, of Lorain, to add five more names to his already long life-saving list. She had 618 tons of coal on board and as she lies in 75 feet of water, this may be secured.

The little sloop Mystic, which went ashore last Friday night off Painesville, was built in 1868, and measures only 15 tons. She has been abandoned, and it was on an expedition to strip her that Capt. W. C. Sly got into trouble with the little schooner Bertha H. Winne, which measures only one ton more, and was built in 1871. The Winne had a narrow escape.

At noon, Thursday, Mr. M. A. Bradley received a telegram from Harvey's Marine Bureau, at the Sault, stating that the steel steamship Alva had a big hole in her side, abreast of the engine, as the result of a collision with whaleback barge 117. No further particulars were given.

VESSEL TRANSFERS.

F. W. Wheeler & Co. have sold the steamer E. S. Tice to Chicago parties, taking the steamer St. Joseph in part payment. The St. Joseph will be taken to West Bay City at once, and will probably be given a new engine and a through overhauling. Captain Hugh Reynolds, of Detroit, has bought the Germania from the Wheeler company, and will her between Cleveland and Saginaw Bay in connection with the W. P. Thew. Mrs. M. L. Poisson, of Grand Rapids, has sold the tug Sport to Thomas B. Perkins, of Grand Hafe, for $1,000. William Thieleman, of Grand Haven, has sold the tug Emma Boecker to William Smith and others, of Kenosha, for $3,250.

CONTEMPLATES A EUROPEAN TRIP.

Capt. Paul Huebner, whose invention of an egg-shaped lifeboat is to be manufactured in Milwaukee, will soon build another boat in which he expects to cross the ocean and visit England, France, Germany and Russia, to the governments of which countries he will try to introduce his boat. The boat will be built at Detroit, and will be 50 feet long, 10 feet beam and 8 feet deep. It will contain a 110 H. P. gasoline engine, and will carry 100 persons.

SHIP BUILDING AND REPAIRS.

A BUSY WINTER IN PROSPECT.

The shipbuilders are pretty certain of having a good year of business. There are a number of contracts in the air. Several builders have been asked to file proposals on two new schooners for Pickands, Mather & Co., or perhaps, more properly, the Minnesota Steamship Co., and most of them have handed in their bids. This matter, it is said, will be decided within a few days. The Union Dry-Dock Co., of Buffalo, may build a boat on its own account, and as soon as the canal steamer Alpha, with her four barges, returns from her first trip to New York, on which she will start within a few days, the directors of the Cleveland Steel Canal-boat Co. will meet and decide whether to go ahead with 18 more boats of this type, or to content themselves with a smaller number. These, with the contracts already announced, will represent quite a respectable addition to the lake fleet.

LAUNCHES OF THE WEEK.

A good deal of new vessel property will have been placed in the water during the ten days ending Saturday. The steamer Sacramento was launched at Davidson's shipyard, in West Bay City, last Thursday afternoon, this being followed on Saturday by a double launch at the Globe shipyard, in Cleveland. The schooner Tyrone was placed in the water with some ceremony, being christened in due form by Miss Adelaide Burns, daughter of one of the owners. Mr. J. R. Irwin, of Fairport, represented the American Transportation Co., for whom the Tyrone is built. She is 313 feet over all, 300 feet keel, 41 feet beam, and 24 feet deep. She carries an 8-foot Scotch boiler, which will furnish power to her steam towing machine, steam capstans and deck engine, windlasses, steerer and an electric light plant. She will be out about August 15, and will tow behind the Harper or Nimick. The other launch was that of the first of the Cleveland Steel Canal-boat Co.'s barges, 98 feet over all, 17 feet 11 inches wide, and 10 feet deep. Another of these was dropped into the water Tuesday, and a third Thursday morning.

At Wheeler & Co.'s shipyard, West Bay City, there will be launched this afternoon the steamer Penobscot, built for the Eddy-Shaw syndicate, of Detroit. She is 372 feet over all, 352 feet keel, 44½ beam, and 37 feet depth. She has ten deck hatches and four package freight gangways on each side. Her engine is a triple expansion, the cylinders measuring 21½, 35 and 58 inches, by 44 inches stroke. The two Scotch boilers, each 13¾ x 12 feet, will have furnaces equipped with Howden hot draft.

The launch of the steamer Yale at the Cleveland shipyard next Saturday at 2:30 o'clock will be an innovation. A large platform will be erected under the bows of the ship, and Yale colors of blue will be generously displayed. By special invitation the members of the Murray-Lane Opera Co. will give several selections just before launching, opening with the patriotic chorus, "Columbia, the Gem of the Ocean." Another song, written especially for the occasion, will be sung to the air of "Hail, Poetry," from the "Pirates of Penzance." Mr. J. K. Murray will choose some sailor's song for a solo number. The Yale is the largest boat ever turned out in Cleveland, and lacks but a few feet of being the largest on the lakes. She is 395 feet over all, 375 feet between perpendiculars, by 45 feet beam and 28 feet depth of hold. She will be propelled by triple expansion engines with cylinders 23, 38, and 63 by 40 inches stroke. She will have two Scotch-type boilers, 14 by 13 feet, with three 46-inch furnaces each.

At Toledo, next Saturday, if the wind and water are favorable, the Shenango No. 1, building at Craig's shipyard for the Conneaut-Port Dover ferry route, will be placed in the water. She is well on toward completion, and will soon be in commission. The Shenango No. 2 is not very far advanced, the idea of the owners probably being to run one boat on the route for a time, in order to see if any changes suggest themselves. The Shenango No. 1 is 300 feet between perpendiculars by 52 feet beam and 25 feet depth. Her engines are compound, built by Hodge & Co., of Detroit, and measure 24 and 48 by 36 inches. She has four boilers, 12 x 12 feet, with three furnaces each, and built by the Globe Iron Works Co., Cleveland, and has three wheels, one forward and two aft. The engines for the No. 2 will be built by the Frontier Iron Works, of Detroit, but the Globe furnishes the boilers.

At the South Chicago shipyard the Zenith City will be launched Aug. 10. The Victory goes on her trial trip next Saturday, and will probably leave that evening for Escanaba, to get a load of ore for South Chicago, and thus get a maximum record of her carrying capacity. After the launch of the Zenith City the Corrigan tow barge will be pushed rapidly to completion.

The Bertram Engine Works, Toronto. have launched a new yacht for the Royal Canadian Yacht Club. This is the concern which Messrs. Angstrom and Curr, formerly with the Cleveland Ship Building Co., are associated with.

AT THE DRY-DOCKS.

Three metal repair jobs have been on hand in Cleveland this week. The whaleback steambarge A. D. Thomson, and barges 111 and 127, which got into trouble at the Beavers, went into dock late last week, the barges going into the Ship Owners' dock, and the steamer into the Cleveland. The Thomson is being repaired by the Cleveland Ship Building Co. Fifteen of her plates forward had to come off, and five of them to be replaced with new ones. She will get out Friday evening or Saturday morning. The 111 had also 15 plates to be removed, and the 127 had nine to come off. Neither damage was so heavy as that of the steamer, and they are already afloat. The Globe Iron Works Co. did the work on the barges. The Cleveland Shipbuilding Co. has been putting a new crank shaft into the Australasia, and has been giving her some other engine repairs.

CHICAGO.—At Miller Bros.' shipyard a schooner yacht is in dock, receiving a new iron keel. The steamer H. L. Worthington was in for some calking, and repairs to her rudder; the steamer Manitou for a new blade to her wheel; and the steamer E. E. Rice to have her shaft taken out and straightened.

PORT HURON.—The burned steamer H. E. Runnels is being rebuilt at Jenks' shipyard. A large force of men are at work on hull and machinery, both of which will be entirely overhauled. It is expected that she will be out about Sept. 1. The Arthur Orr is in Dunford & Alverson's dry-dock as a result of getting aground near here a few days ago.

DETROIT.—The schooner Peshtigo has been hauled out an rollers at the Wyandotte Boat Co.'s yard, and will be rebuilt into a steam-barge with a capacity for 1,000,000 feet of lumber, at a cost of $25,000. The Frontier Iron Works has the contract for rebuilding the engines that are to be put into the old steamer Waldo Avery, which is rebuilding at West Bay City and will be called the Phoenix. At the Oades dock the dredge Racine is being overhauled, and the scow Julia Miner has been hauled out on the ways for repairs. The lighthouse boat Amaranth and the steambarge Volunteer have been getting minor repairs at the Detroit dry-dock. The schooner George W. Davis, has been getting an over-hauling at the upper dry-dock, and the steam-yacht Roberta was in for some attention to her crankpin.

SUPERIOR.—The estimate of the repair bill on barge 130, which got ashore near Cheboygan when in tow of the John Mitchell, is $4,200. The Pratt has completed her repairs. The Nyanza will probably go into the dock here after the dispute over her cargo is settled.

OBITUARY.

Capt. John E. Winn died Sunday at his home, No. 309 East 23d street, Detroit, aged 53 years He had been ailing for some time, and death came as the result of a complication of troubles.

Capt. Winn had sailed the lakes for 35 years. He served as master for 14 years of this period; was a well-known master, among his commands being the Westford and Monitor. He was at one time owner of the schooner Gerritt Smith.

Capt. Winn gave up sailing in 1888, on the advice of his physician, and engaged in the coal and wood business until sickness obliged him to aetire. His wife survives him. The funeral services occurred at his late home Wednesday afternoon.

A black spar buoy has been placed in 21 feet of water to the northward of the shoal entending off Big Bay Point, Lake Superior. Two third-class buoys have also been placed to mark the southern and southeastern limits of the shoal of Point Abbaye, Lake Superior. These buoys will be placed in position in June, and taken up in October of each year.

INLAND LLOYDS' SUPPLEMENT.

Supplement No. 4, of the Inland Lloyds' Vessel Register for 1895, contains names of three boats which are just completed—the steamer George Farwell, measuring 600 tons net, built at Marine City by Anderson, for J. H. Farwell and others, Detroit, valued at $50,000, and rating A1½*; the schooner A. W. Comstock, registering 778 tons, built at Algonac by Abram Smith on builders' account, valued at $45,000 and rating A1*; and the tug B. B. Inman, rating A1, $17,000. The Idler and Islander, both river passenger boats, are enrolled for the river only, the former rating B1, $7,000, and the Islander A2, $12,000, The barge Alaska, which has been converted into a propeller for R. J. Cram, of Detroit, shows an admeasurement of 361 tons net, is rated B1, and valued $7,500. The steamer Argonaut, since getting her overhauling, has been rated A2, and valued at $28,000. Another new enrollment is the Bon Ami, built at Saugatuck by Rogers & Bird in 1894, on their own account, and rated A1½ and valued $15,000. The Rhoda Emily, now a single decker, is rated A1½. By a correction the valuation of the J. N. Glidden was raised from $45,000, as it appeared in the book, to $55,000. The Oregon and Otego, which were repairing in the spring when the book was issued, have been inspected and classified. The Oregon rates A2, $35,000, and the Otego, A2½, $8,000. A correction in the rating of the Phoenix, formerly the W. A. Avery, shows that she has steel arches. The Maud Preston, which has been receiving large repairs, is newly enrolled for the year, with a valuation of $6,000 and a rating of A2. She is owned by George McCullach, of Detroit.

An old-timer appears in the old schooner Ebenezer, built in Buffalo in 1846, which is enrolled in the supplement. She is still considered worth $1,500, and is rated B1, but for coarse freight only. The schooner Mystic Star, repaired in 1895, rates A2, $5,000; the S. L. Watson, which has been receiving some new framing and timbers aft, rates A2, $13,000; the F. S. Wells, owned by McClary and others, of Sackett's Harbor, rates A2, $1,800; and the H. C. Winslow, B1½, $1,500.

Among the barges appears the whilom steamer George W. Johnson, now valued at at $5,000 and rated A2½. The George L. Colwell has also been reduced from a steamer to a barge, and is rated B1, $7,000. The H. P. Baldwin is valued at $5,000 and is rated B1, for coarse freight only; the Bahama $3,500, A2½; the L. W. Drake is made only a coarse freighter; the Fostoria, after repairing, rates B1½; and the Charles Wall, which has also been repaired, rates B1, $7,500. The D. P. Dobbins has been repaired. and is valued at $9.000 and rates 2½.

PERSONAL.

Mr. E. V. Smalley, editor of the North-West Magazine, ably discusses, in the August Forum, "The Deep Waterways Problem."

J. C. Closse, of Berlin Heights, managing owner of the C. W. Elphicke, has been making a trip to Duluth with his family on that steamer.

Capt. J. H. Andrews, who built and sailed the schooner Nellie Reddington, is now living in Florida. He has one of the cleanest records as regards mishaps, that was ever boasted by a lake captain.

Capt. William McClain, one of the best known and most popular of Toronto's customs officers, has been retired, in accordance with the superannuation laws, although he is still hale and hearty.

Gen. O. M. Poe will be retired from the army on March 7, 1896. The vessel interests will probably try to have him retained in charge of the improvements at the Sault and the deep water project until they are finished, but this can only be done by act of Congress.

Mr. W. F. Wood, inspector in charge of the construction of the Wisconsin & Michigan ferry barges, at Davidson's yard, West Bay City, was in Cleveland over Sunday. Mr. Wood has a collection of very fine photographic views of new British craft, and the scenery around Grenoch. The photographs were taken by a younger brother, and show a particularly fine degree of workmanship.

Assistant General Manager F. P. Gordon, of the Northern Steamship Co., attended the launch of the schooner Tyrone at the Globe shipyard last Saturday. He says that the big steamships have been carrying good loads of passengers, but that August will be the big month this year, as it was last season. "We have more reservations for every trip in August from Buffalo," said Mr. Gordon, "than the North West took out of that city on her last trip, and there was a crowd on board then."

MARINE LITIGATION.

THE TILDEN-ARABIA COLLISION.

The daily press has already called attention to the decision handed down Friday by Judge Ricks in the case of M. A. Bradley and others vs. The Western Transit Co. The collision occurred nearly nine years ago, and the case has been pending in the courts for a considerable time. It was heard by Judge Ricks three years ago, but he reserved his decision, and it was not made known until last week. Both vessels are still in commission, the Tilden now being owned by E. S. Pease.

On the night of October 23, the barge Tilden, loaded with iron ore, lay at anchor in the St. Clair River, just below the Middle Ground, awaiting the steamer Fay, which was to tow her down. The Fay came down with the Rhodes in tow and passed between the Tilden and the Canadian shore. She was still so far from the Canadian shore that she continued to starboard her helm, came about below the Tilden and passed up alongside, about thirty feet from the Tilden, and towed the Rhodes alongside at about the same distance. The towline was then passed from one schooner to the other, but while this was being done the bow of the Rhodes fell away toward midstream until only her red light showed upstream.

The master of the Arabia, which was coming down, saw the red light only, and supposed the Rhodes was a schooner bound for the Canadian shore. The master of the Fay said he blew two whistles when the Arabia was seven-eighths of a mile distant, opposite the Sarnia elevator. The Arabia answered, but continued on her course. The Fay then blew a second signal of two whistles, which was again answered by the Arabia without changing her course. The captain of the Fay testified that when the Arabia was abreast of him he gave several short sharp whistles and called out to the Arabia: "Starboard! why don't you starboard and keep clear of my vessels?" He says he then heard a cry on the Arabia of "Starboard, man, starboard!" However, the helm of the Arabia was ported and crossed the Rhodes' bows. Just as she caught the Rhodes' bows the towline was let go and then the collision with the Tilden occurred.

The libelant claimed that the distance between the Tilden and the Canadian shore was 1,200 feet, and that had the Arabia kept on in the ordinary course of vessels, she would have cleared the Fay's tow by 600 feet.

The respondent claimed that the master of the Arabia had the right to assume that the Rhodes was a Canadian bound vessel, and that she had accordingly the right to pass astern of the vessel; that she had no right or reason to consider the Rhodes a part of the Fay's tow, although the Fay had two lights at her masthead.

The decision states that the first important fact to be considered was that the Tilden was anchored in a usual and safe place, well over to the American side. Most of the witnesses agreed that she was in a proper position, 340 feet from the dock, and 380 feet from the shore; the river was 1,900 feet wide there and 1,650 feet wide just above. The witnesses agreed that the main channel in 1886 was on the Canadian side, and that vessels took it, whether passing up or down.

The Fay showed the proper lights, and so did the tow. So the ship and tug are one vessel. (The Civilta and the Restless, 103 U. S. 701.) The Fay's masthead light indicated a tow, and while this may not have been notice of more than one vessel, yet the fact that the third vessel showed an anchor light, and was in the customary place for vessels to anchor awaiting tow, should have put the master of the Arabia on inquiry as to what relations the three vessels bore to each other. He had abundant time and opportunity to decide this question. His speed was variously estimated at from 12 to 17 miles, so he was about four minutes running from the Sarnia elevator to where he collided with the Tilden. It was clearly his duty to have watched the lights and to have determined the relations of the vessels from their movements. If the time was not sufficient, at this speed, he should have checked down in order to clearly determine the question. The evidence was overwhelming that the red light on the Rhodes did not change its position materially, and as the engines of the Fay had been started, in order to head the Rhodes up stream, the red light must have moved slightly toward the American side.

The only contention of the respondent is that he had reason to believe that the schooner was sailing and bound for the Canadian shore. He says he saw the sails, but does not pretend to know how much wind there was, and evidently gave no consideration to these facts, all of which were important elements to weigh. A number of witnesses gave it as their opinion that the Arabia could have escaped the tow after the danger signals were given by the Fay. The preponderance of the testimony is that the sails on the Rhodes were furled. The masters of the Fay and Rhodes so testified, and it was the usual rule when entering St. Clair River.

It has been contended that there was carelessness on the part of the master of the Fay in maneuvering his vessel at the time he took up the Tilden, but the majority of the many experts testified that the maneuvers were proper and usual under such circumstances.

There was some testimony that the Tilden should have displayed a torch as a danger signal, and that the Rhodes should have done likewise. The anchor light of the Tilden was in itself a signal that she was in a position of rest, and this signal protected her from any collision with moving vessels. The burden of proof is on the steamer to show that she was free from fault. Many masters of long experience testified that they would not have looked for a torch upon either the Tilden or the Rhodes, and that the absence of such a signal would not in their judgment, excuse a steamer in such a case.

"I have carefully considered all the testimony in this case," concludes the decision, "and am driven to the conclusion, by a great preponderance of it, that the master of the Arabia was wholly in fault, and that through his negligence the collision occurred. A decree may be drawn accordingly, referring the case to a master to assess the damages."

SUIT AGAINST TUG OWNERS.

In the United States District Court at Milwaukee, lately, the case of C. W. Elphicke, Edward Kohnert and W. B. Hotchkiss, owners of the schooner F. W. Gifford, against C. H. Starke, Conrad Starke and W. H. Meyer, owners of the tug W. H. Simpson, was tried. The schooner Gifford left Chicago April 8, 1894, corn laden, for Port Huron, encountered a storm 30 miles northeast of Milwaukee and tried to make the latter port. The tug Simpson took her in tow, and, it is alleged, by mismanagement, sent her to bank against the Benjamin coal dock at the Milwaukee River. It is claimed that the schooner was damaged $2,500, lost $825 by reason of delays and was obliged to pay the Benjamin Coal Co. $598 for damage to the dock. Damages are claimed to the amount of $4,000. The plaintiff tendered the tug owners' usual fee for towing, which was refused.

The answer of the tug owners is that the Gifford was found out in the lake in a heavy storm in a helpless condition and taken into port; that the crew on the schooner, while going up the straight cut, neglected to obey the signal from the tug; that the very heavy sea was running into the harbor, and that by reason of the neglect of the crew to obey the signals, the tug was in danger of being run down by the schooner; and that in order to avoid this and prevent the schooners going to bank, the lines which had been slacked to allow the crew to shorten them, had to be suddenly jerked, when it parted, resulting in the damage complained of. Markham & Nickerson, of Milwaukee, represent the libelants, and M. C. Krause the tug owners. The case was submitted on July 12, and is still under advisement.

A CHICAGO RIVER COLLISION.

The steamer Majestic was libeled at Chicago last Friday afternoon by James Corrigan, owner of the steamer Australasia, on account of a collision between the two boats in Chicago River, Nov. 1, 1894. The Majestic was coming down in tow of the tug Van Schaack and the Australasia, coal laden, was bound up in tow of the tug Crawford. The bill stated that the Majestic was coming at a high rate of speed, beyond control and after striking a dock, corraled in the Australasia, which had come to a full standstill. The Majestic struck the Australasia a heavy blow some ten feet abaft of the stem, and caused damages amounting to $4,000.. The Majestic was bonded.

BOTH WERE TO BLAME.

Judge Ricks disallowed all claims for damage in the suit of the Bradley Transportation Co. against the owners of the tug John Gregory, for the loss of their tug, the Forest City, by collision with the Gregory in September, 1888. The amount of damages asked for was $7,000. Both tugs were racing for a tow, when, according to the evidence, the Forest City began crowding upon the Gregory, and was sunk in a collision that occurred in consequence. The Gregory's owners had filed a cross libel, but Judge Ricks held that while the Forest City was to blame for the collision, yet the Gregory was sufficiently culpable to debar her owners from collecting any damages.

THE WINTER WHARF DROP.

The winter wharf drop, of which the American Ship Windlass Co. is the sole manufacturer is producing the same favorable results that all the machines manufactured by this company do. This drop is made for passenger foot bridges, ship or ferry bridges, etc. It is designed to move up and down to meet the varying requirements of tides and light or loaded vessels. The bridge is operated through worm gearing and stands locked where left. The arrangement is in itself made a perfect balance, and is therefore capable of being moved with the least possible amount of friction, and from the nature of the mechanism, is at once powerful, simple and free from danger of derangement. The drops or bridges at India Wharf, Boston, are 25x12 feet, and are of heavy proportions and capable of taking 20 tons over them with the greatest safety, yet they can be quickly raised or lowered by one man.—Philadelphia Price Current.

HEADQUARTERS ON THE LAKES.

DeGrauw, Aymar & Co. have appointed Mr. A. Osier as their representative to look after their lake trade in cordage, chain, and other vessel supplies. Mr. Osier will pay frequent visits to all the lake ports between Buffalo and Duluth and Chicago in the interest of this firm. His headquarters will be in Bay City. This firm manufactures anchors, and has the U. S. agency for the Vulcan and Tyzack stockless anchors.

NEWLY ENROLLED LAKE TONNAGE.

The following lake vessels were newly enrolled in the United States List of Merchant Vessels during the week ended July 20, with their official numbers: No. 127,098, steam canal boat Alpha, built in and hailing from Cleveland, 132.23 tons gross, 85;08 tons net; No. 86,321, tug Good Will, built in and hailing from Buffalo, 65.63 tons gross, 44.63 tons net; No. 62,947, barge Wannegan, built at and hailing from Oswego, N. Y., gross and net tonnage, 58.94.

TRADE NOTES.

The Almy Water Tube Boiler Co., of Providence, R. I., have removed from the corner of Clifford and Eddy Sts. to their manufactory, Nos. 178–184 Allen's Avenue.

The St. Lawrence River Skiff, Canoe & Steam Launch Co., are about to remove their establishment from Clayton, to Ogdensburg, N. Y., where they will begin at once the construction of a large manufactory. The building site is 400 x 230 feet, and the company expects to be in its new quarters by October.

Capt. John C. Pringle, master of the yacht Penelope, has just written to H. G. Trout, at Buffalo, as follows, from St. Clair, Mich.: "The wheel purchased from you for yacht Penelope is giving entire satisfaction. It increased the yacht's speed ¼ mile per hour on the same steam pressure and coal consumption, and backs a great deal better than the old wheel. It is the best wheel, by long odds, that we have ever had on the yacht."

The Huyett & Smith Manufacturing Co., of Detroit, is making the blowers and draft appliances for the new side wheel steamer that is being built for the Cleveland & Buffalo Transit Co. They are also to furnish similar appliances for the two large steamers building at John Roach's shipyards, at Chester, Pa., for service between New York and New London. Special engines are being constructed for these blowers.

The high-lights of the Midsummer Holiday Century are three beautiful wood-engravings by Cole, after celebrated pictures by Rubens, the cuts having been made in the presence of the pictures themselves; a fully illustrated decription by Philo N. McGiffin, of the battle of the Yalu River between the Japanese and Chinese fleets, in which the writer commanded the Chinese ironclad Chen Yuen; a comment on this memorable engagement by the distinguished naval critic, Capt. A. T. Mahan, entitled "Lessons from the Yalu Fight;" an engaging illustrated installment of Sloan's Life of Napoleon, including the second campaign in Italy and the battle of Marengo, with maps, battle scenes, and portraits made especially for this work. Dr. Henry Van Dyke contributes an article on "Old-Fashioned Fishing." In "A Bit of Italian Merrymaking," Mrs. Scott-Uda describes the Lilies of Nola, an Italian city, the "lilies" being turrets eighty or ninety feet high representing the different trades, and carried about on movable platforms.

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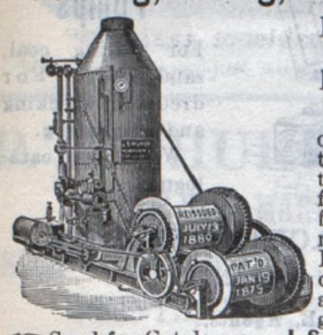

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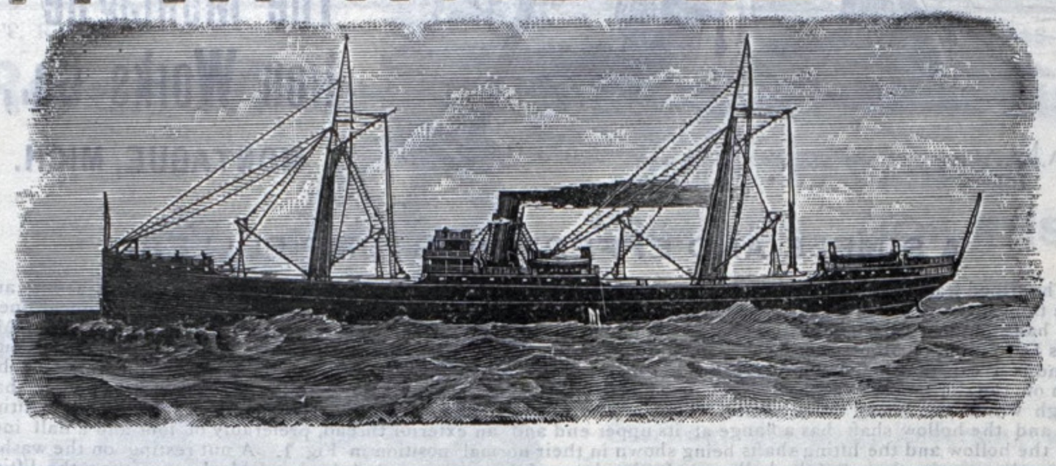

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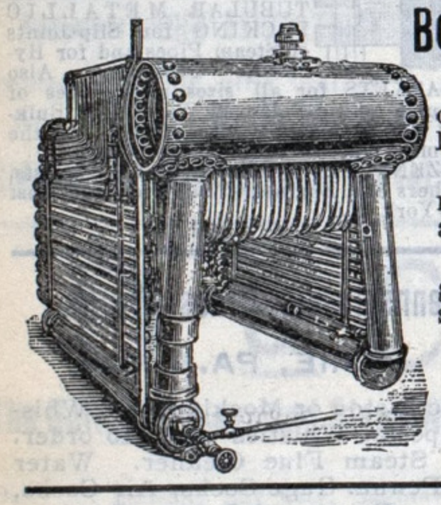

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Telephone No. 157, TOLEDO, OHIO.

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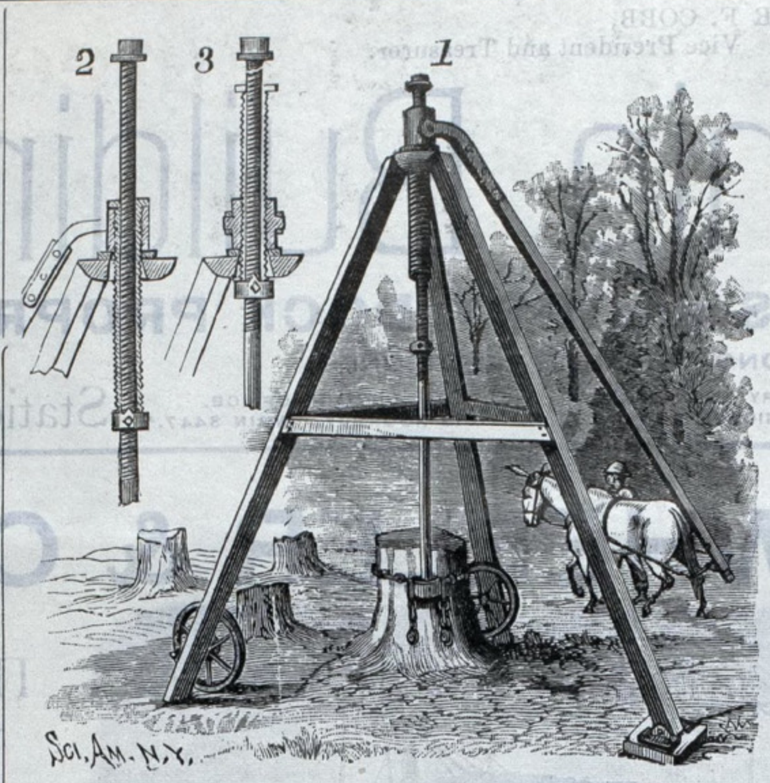

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A SIMPLE AND EFFECTIVE STUMP PULLER.

The tripod frame of this stump puller has two of its legs provided with wheels, to facilitate moving it about, and to the third leg is swiveled a shoe, the head block at the top being preferably of metal, and having a conical opening, a half round washer resting on the block above the opening. The improvement has been patented by Mr. James D. Wilson, of Montague, Mich. Secured in any suitable way to the stump is a lifting shaft at whose upper end is a cap, the shaft having an exterior thread, preferably of two and a quarter inch pitch, and an adjustable clutch on the shaft, below the head block, is adapted for locking engagement with the lower end of a hollow shaft through which the lifting shaft passes. The interior of the hollow shaft has a thread engaging that of the lifting shaft, and the hollow shaft has a flange at its upper end and an exterior thread, preferably of four and a half inch pitch, the hollow and the lifting shafts being shown in their normal position in Fig. 1. A nut resting on the washer receives the exterior thread of the hollow shaft, the shape of the washer and of the head block permitting the lifting shaft to be somewhat inclined without becoming cramped. Arms projecting from the nut are secured to a lever or sweep to which a draught animal is attached, the lifting shaft moving up at a speed corresponding to the pitch of its screw thread, as the sweep is carried around, but when the clutch on the lifting shaft engages with the hollow shaft the latter is also carried up with the main shaft, at a correspondingly greater speed, owing to its coarser pitch, the stump then being raised four and one half inches at each revolution of the sweep. In Fig. 2 the lifting shaft is shown drawn up to a connection with the auxiliary shaft, and in Fig. 3 the two shafts are shown elevated together. As will be seen, the stump is first started and slowly drawn up by the main shaft, and is afterward raised more rapidly by the coarser thread on the auxiliary shaft.—*Scientific American.*

Will pull the largest stumps without digging or chopping. The price of all iron-work, including chains, is $125.00 delivered on car or boat, Montague, Muskegon Co., Mich., and we furnish a blue print from which to make the wood work. This machine has all of the advantages of the old screw power besides the advantage of the quick hoist for lifting the stump out of the hole, and will accomplish twenty-five per cent. more work than the ordinary stump machine. Main screw of steel 3½ inches in diameter, 16 feet long, auxiliary or quick hoist screw 5½ inches in diameter, 5 feet long. Chains 1 inch or 1⅛ inches in diameter by 8 feet long. Iron work for machine complete weighs 1,400 pounds. The timber required for frame is 10 by 12 inches Norway pine, or 8 by 12 inches hardwood, and tapered to 8 by 8 inches at the ends.

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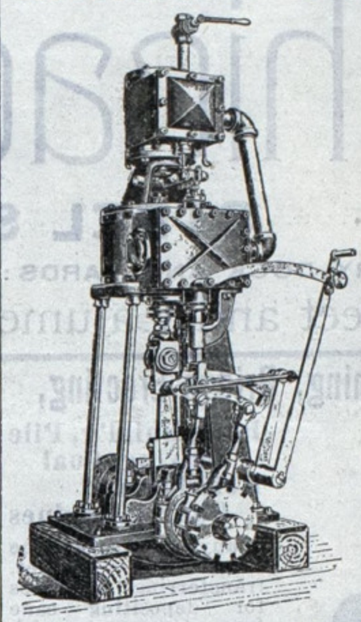

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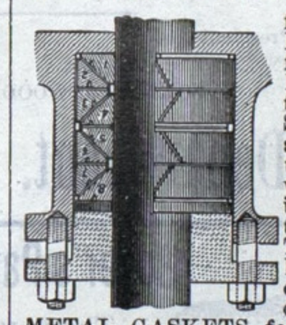

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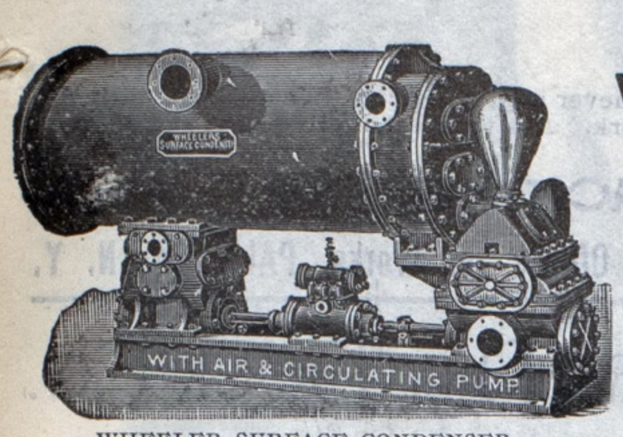

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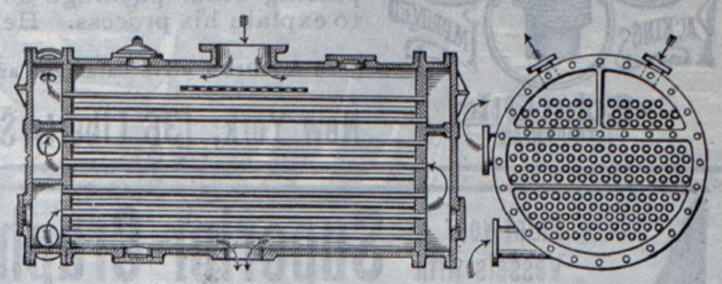

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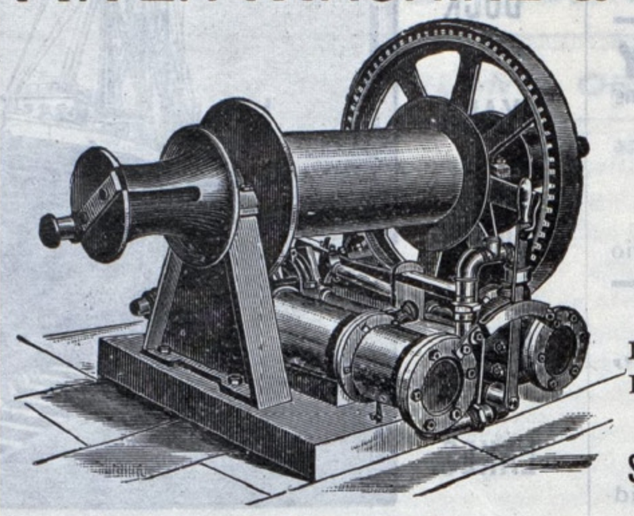

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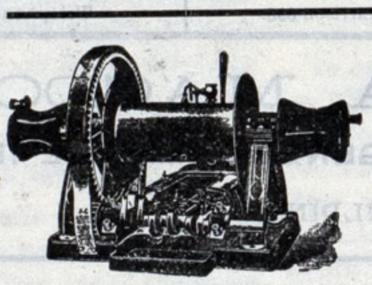

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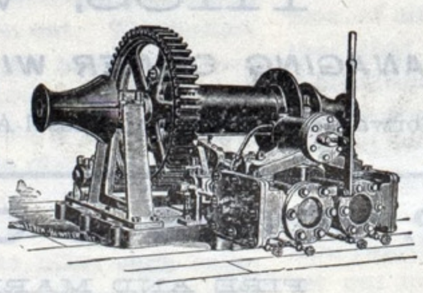

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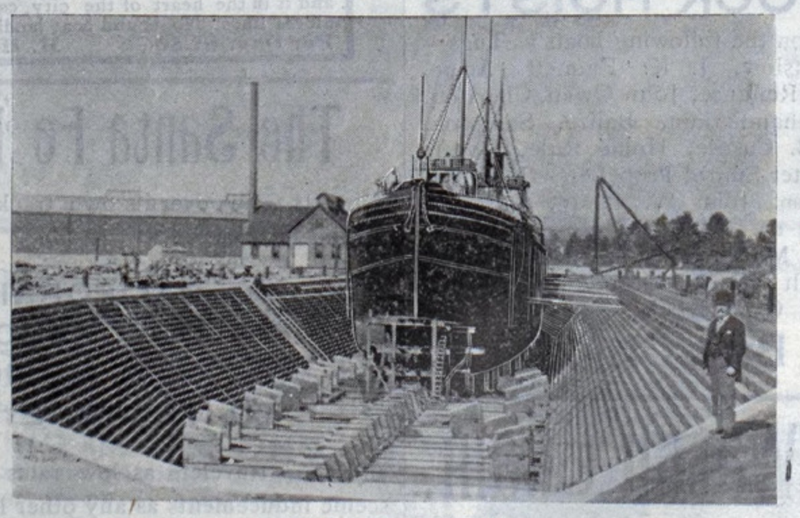

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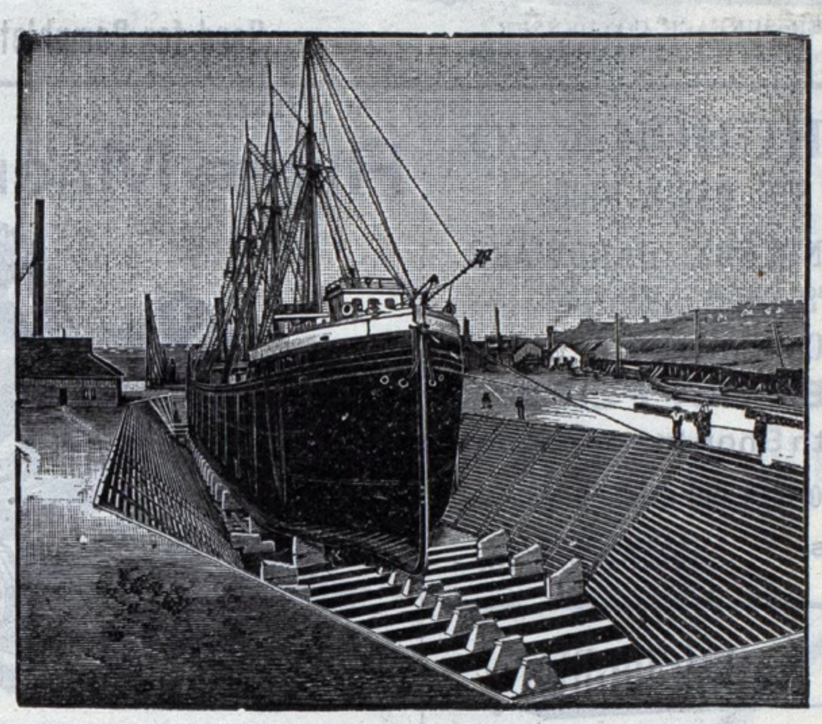

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